CLAIMS:

1. A method of blasting plural layers of material in a blast field including a first body of material comprising at least a first layer of material and a second body of material comprising at least a second layer of material over the first body of material, the blast field having at least one free face at the level of the second body of material, the method comprising drilling blastholes in the blast field through the second body of material and, for at least some of the blastholes, at least into the first body of material, loading the blastholes with explosives and then firing the explosives in the blastholes in a single cycle of drilling, loading and blasting at least the first and second bodies of material, wherein the first body of material is subjected to a stand-up blast in said single cycle and said second body of material is subjected to a throw blast in said single cycle whereby at least a substantial part of the second body of material is thrown clear of the blast field beyond the position of said at least one free face.

2. A method according to claim 1, wherein blasting is of plural strata of material including a first body of material comprising at least of first stratum of material and a second body of material comprising at least a stratum of overburden over the first body of material.

3. A method of blasting according to claim 1, wherein at least 15% of the second body of material is thrown clear of the blast field in said single cycle.

4. A method of blasting according to claim 1, wherein at least 20% of the second body of material is thrown clear of the blast field in said single cycle.

5. A method of blasting according to claim 1, wherein at least 25% of the second body of material is thrown clear of the blast field in said single cycle.

6. A method of blasting according to claim 2, wherein the second body of material consists essentially of the stratum of overburden.

7. A method of blasting according to claim 6, wherein the explosives in the second body of material are spaced from the bottom of the second body of material.

8. A method of blasting according to claim 1, wherein the explosives in each of at least some of the blastholes in the second body of material are provided as a main column of explosives and as a relatively small deck of explosives spaced from and beneath the main column.

9. A method of blasting according to claim 8, wherein the relatively small deck of explosives is fired on a different delay to the main column.

10. A method of blasting according to claim 2, wherein the first body of material comprises at least two strata of recoverable mineral and at least one stratum of interburden therebetween.

11. A method of blasting according to claim 10, wherein the explosives in the first body of material are disposed only in the at least one stratum of interburden.

12. A method of blasting according to claim 11, wherein the explosives in the interburden are spaced from the strata of recoverable mineral.

13. A method of blasting according to claim 12, wherein the blastholes are not drilled into the lowermost strata of recoverable mineral in the first body of material.

14. A method of blasting according to claim 11, wherein the explosives in each of at least some of the blastholes in the interburden are provided as a main column of explosives and as a relatively small deck of explosives spaced from and beneath the main column.

15. A method of blasting according to claim 14, wherein the relatively small deck of explosives is fired on a different delay to the main column.

16. A method of blasting according to claim 1, wherein not all of the blastholes in the second body of material extend into the first body of material.

17. A method of blasting according to claim 16, wherein at least some of the blastholes in the second body of material do not extend to the bottom of the second body of material.

18. A method of blasting according to claim 2, wherein a third body of material is disposed between the first and second bodies of material, the third body of material comprising at least one stratum of burden and/or recoverable mineral, and wherein the third body of material is subjected to a throw blast in said single cycle of different design to the throw blast to which the second body of material is subjected in said single cycle.

19. A method of blasting according to claim 1, wherein the first body of material is buffered in the direction of throw defined by the throw blast of the second body of material.

20. A method of blasting according to claim 19, wherein the buffering is at least partly provided by material from the second body of material thrown in said throw blast in said single cycle.

21. A method of blasting according to claim 20, wherein the portion of the second body of material designed to provide the buffering material for the first body of material is adjacent the at least one free face and is divided into layers by respective decks of explosives in the blastholes in said portion of the second body of material, and wherein all the decks of explosives in any one layer of said portion are fired before any deck in a layer of said portion beneath said one layer.

22. A method of blasting according to claim 20, wherein the explosives in blastholes in the first body of material are initiated from the back of the blast (remote from the location of the free face) towards the front of the blast (adjacent the location of the free face).

23. A method of blasting according to claim 22, wherein the explosives in blastholes in the first body of material adjacent the back of the blast are initiated while material of the second body of material thrown by the throw blast in said single cycle is airborne.

24. A method of blasting according to claim 1, wherein the explosives in blastholes in the first body of material are initiated from the back of the blast (remote from the location of the free face) towards the front of the blast (adjacent the location of the free face).

25. A method of blasting according to claim 1, wherein the explosives in blastholes in one or both of the first and second bodies of material have an initiation point remote from edges of the blastfield.

26. A method of blasting according to claim 25, wherein the blast in said one or both of the first and second bodies of material proceeds in multiple directions from said initiation point.

27. A method of blasting according to claim 1, wherein the explosives in blastholes in the second body of material adjacent the back of the blast (remote from the location of the free face) are initiated before the explosives in blastholes in the second body of material further forward (closer to the location of the free face).

28. A method of blasting according to claim 1, wherein in said single cycle the stand-up blast in the first body of material is initiated after initiation of the throw blast in the second body of material.

29. A method of blasting according to claim 28, wherein the delay between initiation of the throw blast in the second body of material and initiation of the stand-up blast in the first body of material is about 40 seconds or less.

30. A method of blasting according to claim 29, wherein said delay is in the range of

about 500 to 25000 ms.

31. A method of blasting according to claim 1, wherein in said single cycle the stand-up blast in the first body of material is initiated before initiation of the throw blast in the second body of material.

32. A method of blasting according to claim 1, wherein the explosives in the blast field are initiated by an electronic detonator delay system.

33. A method of blasting according to claim 1, wherein said loading and blasting in said single cycle are preceded by blasthole logging to determine the location of any stratum of recoverable mineral in each blasthole.

34. A method of blasting according to claim 33, wherein the blasthole logging comprises gamma-ray logging.

35. A method of blasting according to claim 1, wherein differential blast design features for achieving the throw blast in the second body of material and the stand-up blast in the first body of material are selected from one or more of blasthole pattern, explosive type, explosive density, blasthole loading configuration, explosive mass, powder factor, stemming, buffering and explosive initiation timing.

36. A method of blasting according to claim 1, wherein the blastholes in the blast field are disposed in plural rows extending substantially parallel to the at least one free face, and wherein the blast in the first body of material has different inter-hole delays in any one row and/or different inter-row delays to the blast in the second body of material.

37. A method of blasting plural layers of material in a blast field including a first body of material comprising at least a first layer of material and a second body of material comprising at least a second layer of material over the first body of material, the method comprising drilling rows of blastholes through the second body of material and, for at least

some of the blastholes, at least into the first body of material, loading the blastholes with explosives and then firing the explosives in the blastholes in a single cycle of drilling, loading and blasting at least the first and second bodies of material, wherein the second body of material is subjected to a blast of different design including at least different inter-row blast hole delay times and/or different inter-hole blast hole delay times in any one row to that of the first body of material, resulting in a different blast outcome in the second body of material to that in the first body of material.

38. A method according to claim 37, wherein blasting is of plural strata of material including a first body of material comprising at least of first stratum of material and a second body of material comprising at least a stratum of overburden over the first body of material.

39. A method of blasting according to claim 37, wherein the blasts of different design in the first and second bodies of material achieve differential fragmentation between the two bodies of material.

40. A method of blasting according to claim 38, wherein the second body of material consists essentially of the stratum of overburden.

41. A method of blasting according to claim 40, wherein the explosives in the second body of material are spaced from the bottom of the second body of material.

42. A method of blasting according to claim 37, wherein the explosives in each of at least some of the blastholes in the second body of material are provided as a main column of explosives and as a relatively small deck of explosives spaced from and beneath the main column.

43. A method of blasting according to claim 42, wherein the relatively small deck of explosives is fired on a different delay to the main column.

44. A method of blasting according to claim 38, wherein the first body of material comprises at least two strata of recoverable mineral and at least one stratum of interburden therebetween.

45. A method of blasting according to claim 44, wherein the explosives in the first body of material are disposed only in the at least one stratum of interburden.

46. A method of blasting according to claim 45, wherein the explosives in the interburden are spaced from the strata of recoverable mineral.

47. A method of blasting according to claim 46, wherein the blastholes are not drilled into the lowermost strata of recoverable mineral in the first body of material.

48. A method of blasting according to claim 45, wherein the explosives in each of at least some of the blastholes in the interburden are provided as a main column of explosives and as a relatively small deck of explosives spaced from and beneath the main column.

49. A method of blasting according to claim 48, wherein the relatively small deck of explosives is fired on a different delay to the main column.

50. A method of blasting according to claim 37, wherein not all of the blastholes in the second body of material extend into the first body of material.

51. A method of blasting according to claim 50, wherein at least some of the blastholes in the second body of material do not extend to the bottom of the second body of material.

52. A method of blasting according to claim 38, wherein a third body of material is disposed between the first and second bodies of material, the third body of material comprising at least one stratum of burden and/or recoverable mineral, and wherein the third body of material is subjected to a blast in said single cycle of different design to the blast to which the first and/or second bodies of material are subjected in said single cycle.

53. A method of blasting according to claim 37, wherein the first body of material is buffered in the direction of throw defined by the throw blast of the second body of material.

54. A method of blasting according to claim 53, wherein the buffering is at least partly provided by material from the second body of material thrown in said throw blast in said single cycle.

55. A method of blasting according to claim 54, wherein the portion of the second body of material designed to provide the buffering material for the first body of material is adjacent at least one free face and is divided into layers by respective decks of explosives in the blastholes in said portion of the second body of material, and wherein all the decks of explosives in any one layer of said portion are fired before any deck in a layer of said portion beneath said one layer.

56. A method of blasting according to claim 54, wherein the explosives in blastholes in the first body of material are initiated from the back of the blast (remote from the location of the free face) towards the front of the blast (adjacent the location of the free face).

57. A method of blasting according to claim 37, wherein the explosives in blastholes in the first body of material are initiated from the back of the blast (remote from the location of the free face) towards the front of the blast (adjacent the location of the free face).

58. A method of blasting according to claim 37, wherein the explosives in blastholes in one or both of the first and second bodies of material have an initiation point remote from edges of the blastfield.

59. A method of blasting according to claim 37, wherein the blast in said one or both of the first and second bodies of material proceeds in multiple directions from said initiation point.

60. A method of blasting according to claim 37, wherein the blast field has a free face at the level of the second body of material and wherein the explosives in blastholes in the second body of material adjacent the back of the blast (remote from the location of the free face) are initiated before the explosives in blastholes in the second body of material further forward (closer to the location of the free face).

61. A method of blasting according to claim 37, wherein in said single cycle the blast in the first body of material is initiated after initiation of the blast in the second body of material.

62. A method of blasting according to claim 61, wherein the delay between initiation of the throw blast in the second body of material and initiation of the stand-up blast in the first body of material is about 40 seconds or less.

63. A method of blasting according to claim 62, wherein said delay is in the range of about 500 to 25000 ms.

64. A method of blasting according to claim 37, wherein in said single cycle the blast in the first body of material is initiated before initiation of the blast in the second body of material.

65. A method of blasting according to claim 37, wherein the explosives in the blast field are initiated by an electronic detonator delay system.

66. A method of blasting according to claim 37, wherein said loading and blasting in said single cycle are preceded by blast hole logging to determine the location of any stratum of recoverable mineral in each blasthole.

67. A method of blasting according to claim 66, wherein the blasthole logging comprises gamma-ray logging.

68. A method of blasting according to claim 37, wherein differential blast design features between the blast in the second body of material and the blast in the first body of material are additionally selected from one or more of blasthole pattern, explosive type, explosive density, blast hole loading configuration, explosive mass, powder factor, stemming and buffering.